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CURRENT LITERATURE.

MINOR NOTICES.

THE PLANTS of various regions in the state of New York have formed the basis for good catalogues. The latest of these is that issued by the Rochester Academy of Science.¹ It is the region studied from 1836 to 1867 by Dr. Chester Dewey, and occupied ever since by an aggressive race of botanists. It is more than a catalogue, as all the features of the area which have any relation to plant distribution are discussed, and interesting comparisons are made with the Cayuga and Buffalo floras. The native species of phanerogams enumerated are 948 in number, the introduced species 250; but including well marked varieties the phanerogamic flora as now constituted is made up of 1,314 distinct forms.—J. M. C.

THE LAST contribution from the National Herbarium² contains a variety of material. A. S. Hitchcock reports upon a collection of plants of 193 numbers made by C. H. Thompson in southwestern Kansas in 1893. F. V. Coville discusses *Crepis occidentalis* and its allies, seven species being described and figured, four of which are new. J. N. Rose reports upon a collection made by Mr. Frank Tweedy in 1893 in the Big Horn mountains of Wyoming. John M. Coulter and J. N. Rose describe and figure a new umbelliferous genus, *Leibergia*, from Idaho and Washington. Alfred Cogniaux describes and figures *Roseanthus*, a new cucurbitaceous genus from Mexico, dedicated to Mr. J. N. Rose. As this number completes the volume a very full index is given.—J. M. C.

A FORM of plant association which he calls *protrophy* has been described at length by Dr. Arthur Minks in a recent volume from the press of Friedländer.³ In 1892 a new *Lebensgemeinschaft*, with the name *syntrophy*, was described by the same author, which, however, does not seem to have

¹ BECKWITH, FLORENCE, and MACAULEY, MARY E., assisted by Joseph B. Fuller. —Plants of Monroe county, New York, and adjacent territory. Large 8vo. pp. 150. Published by the Rochester Academy of Science, June 1896. \$1.00.

² Contributions from the U. S. National Herbarium 3: 537-612. 1896.

³ MINKS, ARTHUR: —Die Protrophie, eine neue Lebensgemeinschaft, in ihren auffälligsten Erscheinungen. 8vo. pp. viii+247. Berlin: R. Friedländer & Sohn. 1896.

impressed morphologists as sufficiently important to be included in modern texts. The reader will find the present work a mine, from which we doubt whether he can take out any ore of value. Certain it is that what he does get he will have to dig for amid the intricacies of involved sentences and the obscurity of a technical terminology that will daunt him from the very beginning. As nearly as we can understand Dr. Minks' protrophy is an association between two species of lichens; one, the protroph, being unable at the beginning of its existence to nourish itself and needing therefore to fasten upon the body of the other independent species which precedes it, and to utilize this so far as necessary as a protection and support until it also can become independent. Protrphy is thus a special case of syntrophy, in which this dependent relation of the syntroph upon the other species is lifelong.

Readers who wish a fuller summary of the work will find a preliminary paper under the same title as the work in the *Oesterreichische botanische Zeitschrift* for February and March of this year.—C. R. B.

AN ACCOUNT of the history, types of variation and cultivation of the chrysanthemum has been published as an independent pamphlet by Henry L. de Vilmorin,⁴ the well known horticulturist. The paper contains nothing new, but is an interesting description of the flower which has achieved a popularity never equaled.—C. R. B.

A WORK quite similar to Willkomm's for the Iberian peninsula⁵ is the paper by Diels reprinted from Engler's *Botanischer Jahrbücher* on the "plant biology" of New Zealand.⁶ Islands, of course, offer the best limited regions for a study of plant distribution, especially if it be a mountainous one like New Zealand. Two general regions are recognizable in this island, viz., forest and alpine. Under each of these Diels discusses the plant formations, with full attention to the ecology of the plants under consideration, treating such topics as water absorption and storage, assimilation, dorsiventrality, etc. The peculiar structural adaptations of several species are figured. A page of rosette plants from the alpine region is especially striking. Finally the vegetation of the remaining islands of the same faunistic zone (Lord Howe, Norfolk, Kermadec, the Chatham group and the Antarctic islands) is discussed. The paper closes with a section showing how the present flora of New Zealand is the outcome of the geological history of the island.—C. R. B.

⁴ DE VILMORIN, HENRY L.:—Le chrysanthème; histoire, physiologie, et culture en France et à l'étranger. Imp. 8vo. pp. 28. figs. 10. Paris: the author. 1896.

⁵ See BOTANICAL GAZETTE 22: 62. 1896.

⁶ DIELS, L.:—Vegetations-Biologie von Neu Seeland. Separat-Abdruck aus Engler's Bot. Jahrb. 22: 202-300. Pl. 3, figs. 7. 1896.

FAMILIAR TREES AND THEIR LEAVES⁷ is the name of a popular book by F. Schuyler Mathews, in which are described over 200 trees of the eastern half of the United States, including not only native but commonly planted species. These descriptions are not at all technical, yet give the characteristics of the tree, its general habit and distribution, and point out the features by which it is separated from similar ones. The illustrations of leaves and generally also of fruits, which accompany the descriptions, will enable one to identify most of the common trees. The difficult task of rendering *texture* in the black and white sketch has not been accomplished by the author-artist, but the outlines are accurate. Less than one-third have been drawn from living specimens and others from herbarium material.

The *raison d'être* of the brief introduction by Professor Bailey, except for the value of his name on the title page, does not appear. The book is certainly to be warmly commended to those, to use Professor Bailey's words, who desire to know the tree as an entirety and to have some knowledge of its kinship and names, and who simply want an introduction to the trees which they meet.—C. R. B.

IN THE REPORT of the botanical department of the State Agricultural college of Michigan for 1895, Dr. W. J. Beal describes the botanic garden designed and planted by him upon the college grounds. A list of the species growing therein and a map of the garden on a scale of about 50 feet to the inch are given.—C. R. B.

MISS MINNIE REED has adapted Barnes' *Key to North American Mosses* to the 165 species found in Kansas, prefixing to it an account of the structure of the mosses (which is not without a number of errors) and adding nine well drawn but poorly printed plates, illustrating thirty-six species. Each generic key is also followed by an account of the geographical distribution within the state. The list, only recently received, is dated by the author June 1893 and is reprinted from the *Transactions of the Kansas Academy of Science for 1893-4*, pp. 152-199.—C. R. B.

RECENT BULLETINS from the Department of Agriculture are these: The Chief of the Division of Vegetable Physiology and Pathology, Mr. Galloway, writes, in the *Experiment Station Record*,⁸ a suggestive though brief paper on

⁷ MATHEWS, F. SCHUYLER: Familiar trees and their leaves described and illustrated, with over 200 drawings by the author and an introduction by Professor L. H. Bailey of Cornell University. 12mo pp. x + 320. New York: D. Appleton & Co. 1896. \$1.75.

⁸ Reprinted as a separate, and issued by the office of experiment stations as a bulletin.

the "lines of investigation that might be undertaken by experiment stations." These words need emphasis: "One of the serious drawbacks to advanced research work is this very matter of continued duplication of work already being done by other stations and the running along in the same old grooves year after year. We cannot hope to have this difficulty remedied, however, until there is some attempt at unification of purpose or specialization on the part of stations."

Dr. Walter H. Evans writes of "Copper sulfate and germination,"⁹ that fungicide being commonly used to prevent smut by soaking the seed. Many contradictory observations are recorded regarding the effect upon germination of soaked seed. He finds that 0.5 and 1 per cent. solutions do no serious injury in 1-2 hours, which is adequate to kill smut spores, and that much stronger solutions can be used if seed are planted at once. Some of his statements need revision in the light of Kahlenberg and True's work on the "Toxic action of dissolved salts."¹⁰

Mr. Jared G. Smith has brought together¹¹ brief untechnical descriptions of the "Fodder and forage plants exclusive of the grasses," including 200 species, both native and exotic, illustrated by fifty-six figures. It forms a very convenient reference list.—C. R. B.

A SECOND EDITION of the catalogue of the plants of Los Angeles county, California,¹² is said on the cover to be a reprint from the *Proceedings of the Southern California Academy of Sciences* but gives no other indication of being anything but an independent pamphlet. Dr. A. Davidson, who prepared the first list in October 1892, is also the author of this. In this county, embracing 4,000 square miles, 100 miles of seacoast, the San Gabriel mountains reaching 6,000 feet, a part of the Mojave desert and the islands San Clemente and Catalina, 934 species and varieties of spermatophytes and 27 of pteridophytes are known. A second part, listing the remaining cryptogams is promised, some day.—C. R. B.

IN A PAMPHLET of eighteen pages with the curious title *Labrador*, published at Munich under date of July 1896, Dr. F. Arnold has given a list of the lichens collected in late years on the east coast of Labrador by Mr. J. W. Eckfeldt and Rev. Arthur Waghorne. One hundred and twenty-seven species are enumerated.—C. R. B.

⁹ Bulletin no. 10, Division Veg. Phys. and Path. 1896.

¹⁰ BOT. GAZ. 22:81. 1896.

¹¹ Bulletin no. 2, Division of Agrostology. 1896.

¹² DAVIDSON, ANSTRUTHER: Catalogue of the plants of Los Angeles county. Part I—Phænogamia. Reprint from the *Proceedings of the Southern California Academy of Sciences*, 8vo. pp. iv + 36, pl. 1. 35 cents.